CITY OF KONKOLVILLE (PWS 2180019)
SOURCE WATER ASSESSMENT FINAL REPORT
PART 2: GROUND WATER SOURCES

March 24, 2003

State of Idaho
Department of Environmental Quality

Executive Summary

Under the Safe Drinking Water Act Amendments of 1996, all states are required by the U.S. Environmental Protection Agency (EPA) to assess every source of public drinking water for its relative sensitivity to contaminants regulated by the Act. This assessment is based on a land use inventory of the designated source water assessment area and sensitivity factors associated with the spring and aquifer characteristics.

This report, *Source Water Assessment for City of Konkolville, Idaho*, describes the public drinking water system, the boundaries of the zones of water contribution, and the associated potential contaminant sources located within these boundaries. This assessment should be used as a planning tool, taken into account with local knowledge and concerns, to develop and implement appropriate protection measures for this source. **The results should <u>not be</u> used as an absolute measure of risk and they should <u>not be</u> used to undermine public confidence in the water system.**

The City of Konkolville drinking water system consists of two springs, a horizontal well that uses infiltrated ground water, and a surface water intake from Orofino Creek. The intake from Orofino Creek and the horizontal well will not be addressed in this report. A separate surface water report assesses the susceptibility of the intake as a surface water source. The springs are located approximately two miles east of the city of Orofino and about one-half mile west of Whiskey Creek. The Hillside Spring Small (Spring #2) is located approximately one-fourth of a mile above the Large Hillside Spring (Spring #1). Water from the springs is piped into a slow sand filtration system that is then piped into a chlorine contact tank where a 12.5% hypochlorite solution is added for disinfection. The springs supply approximately 5,000 gallons of water per day to the drinking water system. The whole system (including the surface water intake) serves approximately 150 people through 21 connections.

Final spring susceptibility scores are derived from heavily weighting potential contaminant inventory/land use scores and adding them with system construction scores. Therefore, a low rating in one category coupled with a higher rating in the other category results in a final rating of low, moderate, or high susceptibility. Potential contaminants are divided into four categories: IOCs (i.e., nitrates, arsenic), VOCs (i.e., petroleum products), SOCs (i.e., pesticides), and microbial contaminants (i.e., bacteria). As a spring can be subject to various contamination settings, separate scores are given for each type of contaminant.

In terms of total susceptibility, the Large Hillside Spring of the City of Konkolville rated high for IOCs, VOCs, SOCs, and microbials and Hillside Spring Small rated low to IOCs, VOCs, SOCs, and microbials. According to the 1997 Ground Water Under Direct Influence (GWUDI) field survey, a house is located within 50 feet of the larger Hillside Spring, resulting in automatic high susceptibility scores for all potential contaminant categories. The system construction for both springs was high due to a lack of information concerning the springs' development. The land use for both springs rated low for IOCs, VOCs, SOCs, and microbials.

No SOCs have ever been detected in either of the springs. Trace concentrations of the IOCs cadmium, nitrate and sodium have been detected in tested water, but at concentrations significantly below maximum contamination levels (MCLs) as set by the EPA. Low levels of disinfection by-products (VOCs) have been detected in the water system in 1997 and 1998 with no recent detections. Disinfection by-products are a result of the disinfection system and not a problem with the actual water source. Alpha and beta particles (radionuclides) have also been detected in the system at levels below the MCLs. Total coliform bacteria have been detected in the system from 1995 to 2002 but no confirmatory detections have occurred.

This assessment should be used as a basis for determining appropriate new protection measures or re-evaluating existing protection efforts. No matter what ranking a source receives, protection is always important. Whether the source is currently located in a “pristine” area or an area with numerous industrial and/or agricultural land uses that require surveillance, the way to ensure good water quality in the future is to act now to protect valuable water supply resources. If the system should need to expand in the future, new well or spring sites should be located in areas with as few potential sources of contamination as possible, and the site should be reserved and protected for this specific use.

For the City of Konkolville, drinking water protection activities should first focus on correcting any deficiencies outlined in the sanitary survey (an inspection conducted every five years with the purpose of determining the physical condition of a water system’s components and its capacity). Actions should be taken to keep a 100-foot radius perimeter clear of all potential contaminants from around the springs. Any contaminant spills within the delineation should be carefully monitored and dealt with. If possible, the larger spring should be protected so that any chance of contamination from the house that sits within 50 feet of it does not contaminate the water. According to the 2002 sanitary survey, one of the weaknesses of the drinking water system is the age of the pipes. They are approximately 35-40 years old and leak repair consumes much of the operator’s time. As much of the designated protection areas are outside the direct jurisdiction of the City of Konkolville drinking water system, collaboration and partnerships with state and local agencies, and industry groups should be established and are critical to the success of drinking water protection.

Due to the time involved with the movement of ground water, drinking water protection activities should be aimed at long-term management strategies even though these strategies may not yield results in the near term. A strong public education program should be a primary focus on any drinking water protection plan as the delineation contains some urban and residential land uses. Public education topics could include proper lawn care practices, household hazardous waste disposal methods, and the importance of water conservation to name but a few. There are multiple resources available to help communities implement protection programs, including the Drinking Water Academy of the EPA. As there are transportation corridors through the delineation, the Idaho Department of Transportation should be involved in protection activities.

A community must incorporate a variety of strategies in order to develop a comprehensive drinking water protection plan, be they regulatory in nature (i.e. zoning, permitting) or non-regulatory in nature (i.e. good housekeeping, public education, specific bet management practices). For assistance in developing protection strategies please contact the Lewiston Regional Office of the Idaho Department of Environmental Quality or the Idaho Rural Water Association.

SOURCE WATER ASSESSMENT FOR CITY OF KONKOLVILLE, IDAHO

Section 1. Introduction - Basis for Assessment

The following sections contain information necessary to understand how and why this assessment was conducted. **It is important to review this information to understand what the rankings of this assessment mean.** Maps showing the delineated source water assessment area and the inventory of significant potential sources of contamination identified within that area are attached. The list of significant potential contaminant source categories and their rankings used to develop the assessment is also included.

Background

Under the Safe Drinking Water Act Amendments of 1996, all states are required by the EPA to assess every source of public drinking water for its relative susceptibility to contaminants regulated by the Safe Drinking Water Act. This assessment is based on a land use inventory of the delineated assessment area and sensitivity factors associated with the springs and aquifer characteristics.

Level of Accuracy and Purpose of the Assessment

Since there are over 2,900 public water sources in Idaho, there is limited time and resources to accomplish the assessments. All assessments must be completed by May of 2003. An in-depth, site-specific investigation of each significant potential source of contamination is not possible. **Therefore, this assessment should be used as a planning tool, taken into account with local knowledge and concerns, to develop and implement appropriate protection measures for this source. The results should <u>not be</u> used as an absolute measure of risk and they should <u>not be</u> used to undermine public confidence in the water system.**

The ultimate goal of the assessment is to provide data to local communities to develop a protection strategy for their drinking water supply system. The Idaho Department of Environmental Quality (DEQ) recognizes that pollution prevention activities generally require less time and money to implement than treatment of a public water supply system once it has been contaminated. DEQ encourages communities to balance resource protection with economic growth and development. The local community, based on its own needs and limitations, should determine the decision as to the amount and types of information necessary to develop a drinking water protection program. Springhead or drinking water protection is one facet of a comprehensive growth plan, and it can complement ongoing local planning efforts.

Section 2. Conducting the Assessment

General Description of the Source Water Quality

The City of Konkolville drinking water system consists of two springs, a horizontal well that uses infiltrated ground water, and a surface water intake from Orofino Creek. The intake from Orofino Creek and the horizontal well will not be addressed in this report. A separate surface water report assesses the susceptibility of the intake as a surface water source. The springs are located approximately two miles east of the city of Orofino and about one-half mile west of Whiskey Creek. The Hillside Spring Small is located approximately one-fourth of a mile above the Large Hillside Spring (Figure 1). Water from the springs is piped into a slow sand filtration system that is then piped into a chlorine contact tank where a 12.5% hypochlorite solution is added for disinfection. The springs supply approximately 5,000 gallons of water per day to the drinking water system. The whole system (including the surface water intake) serves approximately 150 people through 21 connections.

No SOCs have ever been detected in either of the spring. Trace concentrations of the IOCs cadmium, nitrate and sodium have been detected in tested water, but at concentrations significantly below maximum contamination levels (MCLs) as set by the EPA. Low levels of disinfection by-products (VOCs) have been detected in the water system in 1997 and 1998 with no recent detections of these chemicals in the drinking water. Disinfection by-products are a result of the disinfection system and not a problem with the actual source of water. Alpha and beta particles (radionuclides) have also been detected in the system at levels below the MCLs. Total coliform bacteria have been detected in the system from 1995 to 2002 but no confirmatory detections have occurred.

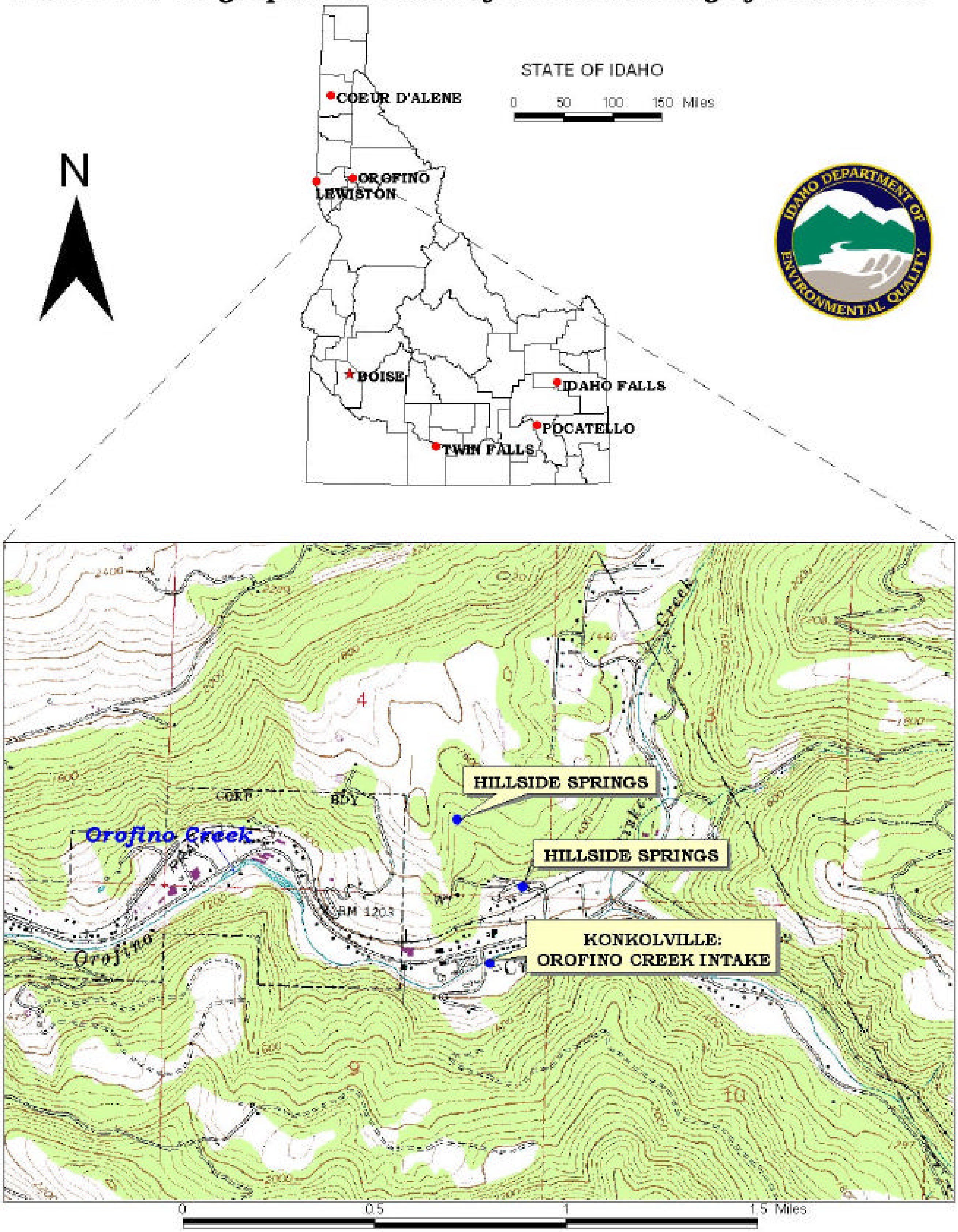
Defining the Zones of Contribution – Delineation

The delineation process establishes the physical area around a spring that will become the focal point of the assessment. The process includes mapping the boundaries of the zone of contribution into time-of-travel (TOT) zones (zones indicating the number of years necessary for a particle of water to reach a spring) for water in the aquifer. DEQ contracted with the University of Idaho to perform the delineations using a method of surface mapping of hydogeologic features approved by the EPA in determining the 3-year (Zone 1B) for water in the vicinity of the City of Konkolville springs. The computer model used site specific data, assimilated by the University of Idaho from a variety of sources including operator input, local area spring logs, and hydrogeologic reports (detailed below).

The conceptual hydrogeologic model for the Konkolville source springs is based on interpretation of nearby available well logs and published geologic maps. The springs are believed to derive water from the Imnaha Basalt Formation of the Columbia River Basalt Group. Bedrock geology is based on the geologic map of the Pullman quadrangle at a scale of 1:250,000 (Rember and Bennett, 1979). Orofino Creek is approximately 200 meters south of the hillside spring. Whiskey Creek discharges into Orofino Creek and lies a few hundred meters east of the springs.

The ground elevation is 1280 and 1460 feet above mean sea level (AMSL) at the hillside spring and hillside small spring, respectively. Maximum discharge from the springs and its recession characteristics are unknown; however, the usage is approximately 8 and 3 gpm, respectively, for the hillside spring and small hillside spring. Little information is known about the hydrogeology of the area.

FIGURE 1. Geographic Location of the Community of Konkolville



There are several methods of mapping protection zone delineations for springs as discussed in the EPA report written by Jensen et al., 1997. These include surface mapping of hydrogeologic features, which is based upon geologic mapping, fracture-trace analysis, and topographic and geographic analyses, *catchment* area estimation, tracer studies, geochemical characterization, isotope studies, potentiometric surface mapping, geophysical techniques, and methods used to support hydrogeologic mapping. Due to limited data available, the spring delineations are determined by examining:

1. Drainage basin boundaries from topographic maps
2. Lithologic units from which the spring derives water
3. Identification of low permeability lithologic units (as possible hydrologic boundaries)
4. Identification of faults or other structural features (also as possible hydrologic boundaries)
5. Identification of potential recharge areas
6. Catchment area (Todd, 1980)

The topographic divides of the drainage basin for the Konkolville springs are defined in the Best Model. However, these surface-water drainage divides may not coincide with the ground water basin boundaries. Topographic highs act as boundaries in the areas surrounding the springs except to the southeast.

Based on the geologic and topographic maps, there are no boundaries surrounding the springs within its drainage basin. Elevations lower than the springs are also not believed to contribute water. The springs are located in a draw, which is located at a higher elevation than the Clearwater River. Whiskey Creek is not believed to contribute water to the springs because it is separated from the springs by topographic highs. Overlying Grande Ronde Basalt crops out northwest of the springs but this geologic contact is not believed to affect the springs discharging from the Imnaha formation. The drainage basin as drawn in Figure 2 may include Grande Ronde basalt to the north; the scale of the geologic map is too small to know with any certainty.

No aquifer recharge data are available for the Konkolville area. In a study by Wyatt-Jaykim (1994) recharge to the central basin (Lewiston basin) was modeled as 1 inch per year (in/yr); 2 in/yr was selected in the higher areas. Because the spring areas lie at higher elevations than most of the basin, precipitation rates are higher. Recharge is therefore expected to be greater.

The amount of areal recharge used in the model for the Konkolville spring sources is 2 in/yr. This is a low value for higher elevations and is conservative. Greater recharge causes a smaller delineation when using the catchment area method calculation. Estimated recharge areas have elevations up to 2600 ft AMSL compared to Lewiston at approximately 700 feet AMSL.

The Best Model for the source springs is based on the catchment area, which is slightly smaller than the drainage basin based on topography. The estimated delineations are drawn in WhAEM using the drawing tools, as shown in the graphical outputs for the Best Model. The delineation is calculated using a forecasted discharge rate of 150% assuming the spring could be developed to produce more water (e.g., by the addition of a pump). The catchment area is calculated to define the spring delineation, which is the same for the 3, 6 and 10-yr travel times.

According to the EPA document by Jensen et al., 1997, capture zones for springs may be estimated using a variety of methods. Due to a lack of data, the Best Model delineation is estimated by the catchment area extrapolated as a 45 degree slice up slope from each spring. The catchment area is estimated using Figure 2.16 in Todd (1980, pg. 49). The necessary input parameters are recharge and discharge. Recharge is estimated to be 2 in/yr or approximately 50 mm/yr. Discharge is assumed to be the usage of the spring with a 50% increase for potential growth of the area, 12 gallons/minute (gpm) or 0.76 L/s for the Hillside Spring, and 5 gpm or 0.28 L/s for the Hillside Spring Small. The resulting catchment areas are roughly 0.75 km^2 and 0.27 km^2, respectively.

The capture zone delineated herein are based on limited data and must be taken as best estimates. If more data become available in the future these delineations should be adjusted based on additional modeling incorporating the new data. The WhAEM model is used to delineate the capture zones.

The delineated source water assessment areas for the springs of the City of Konkolville water system can best be described as fan-shaped, northwest trending areas (Figure 2 and Figure 3). The delineated area for the larger Hillside Spring overlaps and includes the area for the small Hillside Spring. The actual data used by the University of Idaho in determining the source water assessment delineation areas is available from DEQ upon request.

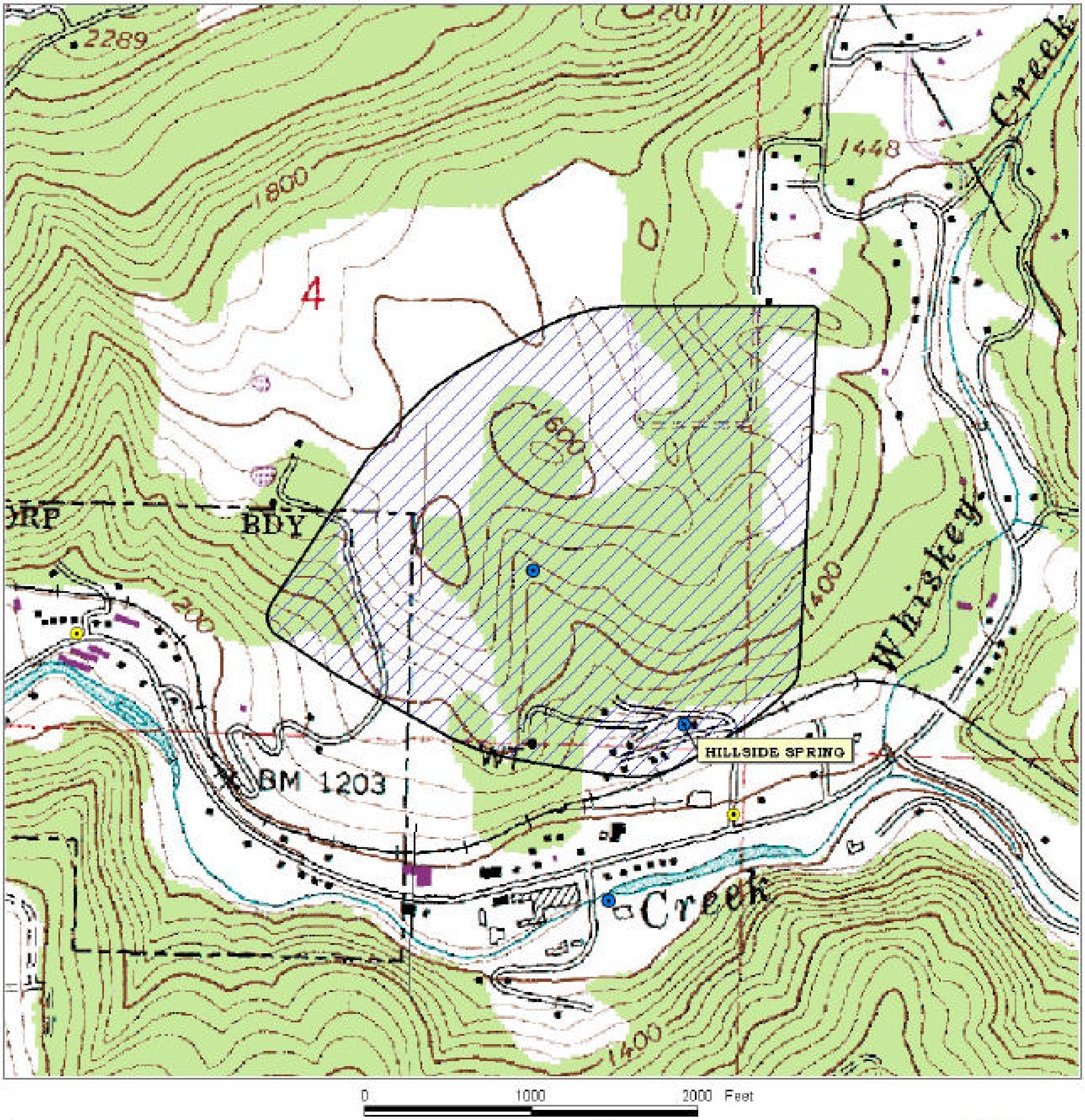
Identifying Potential Sources of Contamination

A potential source of contamination is defined as any facility or activity that stores, uses, or produces, as a product or by-product, the contaminants regulated under the Safe Drinking Water Act and has a sufficient likelihood of releasing such contaminants at levels that could pose a concern relative to drinking water sources. The goal of the inventory process is to locate and describe those facilities, land uses, and environmental conditions that are potential sources of ground water contamination. The locations of potential sources of contamination within the delineation areas were obtained by field surveys conducted by DEQ and from available databases.

Land use within the immediate area and the surrounding area of the City of Konkolville springs is predominantly woodland.

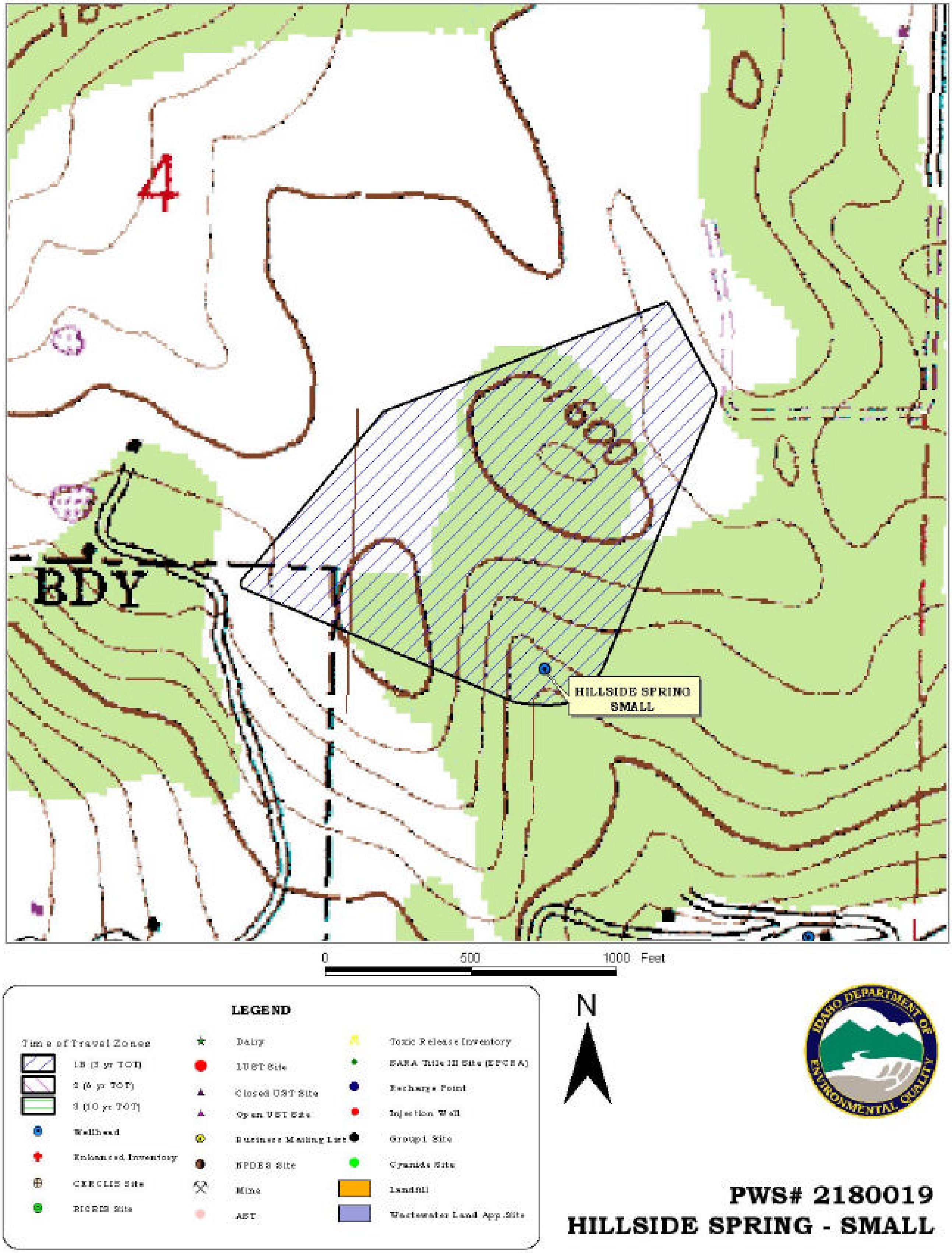
It is important to understand that a release may never occur from a potential source of contamination provided they are using best management practices. Many potential sources of contamination are regulated at the federal level, state level, or both to reduce the risk of release. Therefore, when a business, facility, or property is identified as a potential contaminant source, this should not be interpreted to mean that this business, facility, or property is in violation of any local, state, or federal environmental law or regulation. What it does mean is that the <u>potential</u> for contamination exists due to the nature of the business, industry, or operation. There are a number of methods that water systems can use to work cooperatively with potential sources of contamination, including educational visits and inspections of stored materials. Many owners of such facilities may not even be aware that they are located near a public water supply spring.

FIGURE 2. Konkolville Delineation Map and Potential Contaminant Source Locations



PWS# 2180019
HILLSIDE SPRING

FIGURE 3. Konkolville Delineation Map and Potential Contaminant Source Locations



Contaminant Source Inventory Process

A two-phased contaminant inventory of the study area was conducted in October and November 2002. The first phase involved identifying and documenting potential contaminant sources within the City of Konkolville source water assessment areas (Figure 2 and Figure 3) through the use of computer databases and Geographic Information System (GIS) maps developed by DEQ. The second, or enhanced, phase of the contaminant inventory involved contacting the operator to identify and add any additional potential sources in the area.

The delineated source water assessment area of the larger spring of the City of Konkolville contains two roads and the Hillside Spring Small. According to the 1997 GWUDI field survey, a house is located within 50 feet of the Large Hillside Spring. These sources are listed in Table 1 below (Figure 2). The delineation of the Hillside Spring Small includes one potential contaminant source: a home within 500 feet of the spring (according to the GWUDI field survey) (Figure 3, Table 2, below). These potential contaminant sources could contribute leachable contaminants to the aquifer in the event of an accidental spill, release, or flood.

Table 1. City of Konkolville, Hillside Spring, Potential Contaminant Inventory and Land Use

Site	Description of Source	TOT[1] Zone	Source of Information	Potential Contaminants[2]
	Road	0-3 YR	GIS Map	IOC, VOC, SOC, Microbials
	Road	0-3 YR	GIS Map	IOC, VOC, SOC, Microbials
	Hillside Spring, Small	0-3 YR	GIS Map	IOC, VOC, SOC, Microbials
	House	0-3 YR (1A)	GWUDI Survey	IOC, VOC, SOC, Microbials

[1] TOT = time-of-travel (in years) for a potential contaminant to reach the springhead
[2] IOC = inorganic chemical, VOC = volatile organic chemical, SOC = synthetic organic chemical

Table 2. City of Konkolville, Small Hillside Spring, Potential Contaminant Inventory and Land Use

Site	Description of Source	TOT[1] Zone	Source of Information	Potential Contaminants[2]
	House	0-3 YR	GWUDI Survey	IOC, VOC, SOC, Microbials

[1] TOT = time-of-travel (in years) for a potential contaminant to reach the springhead
[2] IOC = inorganic chemical, VOC = volatile organic chemical, SOC = synthetic organic chemical

Section 3. Susceptibility Analyses

A spring's susceptibility to contamination was ranked as high, moderate, or low risk according to the following considerations: construction, land use characteristics, and potentially significant contaminant sources. The higher the ranking the system receives in any of the considerations or in the total susceptibility of the system, the more vulnerable the system is to contamination. The susceptibility rankings are specific to a particular potential contaminant or category of contaminants. Therefore, a high susceptibility rating relative to one potential contaminant does not mean that the water system is at the same risk for all other potential contaminants. The relative ranking that is derived for the spring is a qualitative, screening-level step that, in many cases, uses generalized assumptions and best professional judgement. Attachment A contains the susceptibility analysis worksheets. The following summaries describe the rationale for the susceptibility ranking.

Spring Construction

Spring construction scores are determined by evaluating whether the spring has been constructed according to Idaho Code (IDAPA 58.01.08.04) and if the spring's water is exposed to any potential contaminants from the time it exits the bedrock to when it enters the distribution system. If the spring's intake structure, infiltration gallery, and housing are located and constructed in such a manner as to be permanent and protect it from all potential contaminants, is contained within a fenced area of at least 100 feet in radius, and is protected from all surface water by diversions, berms, etc., then Idaho Code is being met and the score will be lower. If the spring's water comes in contact with the open atmosphere before it enters the distribution system, it receives a higher score. Likewise, if the spring's water is piped directly from the bedrock to the distribution system or is collected in a protected spring box without any contact to potential surface-related contaminants, the score is lower.

Both Konkolville springs rated high for system construction (Table 3). Very little information is known about the development or construction of either of the springs. The 2002 sanitary survey indicates that the water from the Large Hillside Spring is piped directly to the slow sand filter. The Large Hillside Spring reportedly produced 8 gpm in June 1997, but is estimated to now produce 4-5 gpm, depending on seasonal conditions. However, it is unknown if the water from the spring is ever exposed to the atmosphere. The Hillside Spring Small reportedly produced 3 gpm in June 1997 and now varies from 4-5 gpm. Both springs are in a fill area with basement granite and vary in the amount of water they produce depending on seasonal conditions. When no information is available about the intake construction, a higher, more conservative, score is given.

Potential Contaminant Source and Land Use

Both springs rated low for IOCs (i.e. nitrates, arsenic), VOCs (i.e. petroleum products, chlorinated solvents), SOCs (i.e. pesticides), and microbial contaminants (i.e. bacteria). The limited number of contaminants within the delineations and the predominant woodland land use of the area make the springs less susceptible to contamination.

Final Susceptibility Ranking

An IOC detection above a drinking water standard MCL, any detection of a VOC or SOC, or a detection of total coliform bacteria or fecal coliform bacteria at the springs will automatically give a high susceptibility rating to a spring despite the land use of the area because a pathway for contamination already exists. Additionally, if there are contaminant sources located within 100 feet of the source then the spring will automatically get a high susceptibility rating. According to the 1997 GWUDI field survey, a house is located within 50 feet of the Large Hillside Spring, resulting in an automatic high susceptibility score for all potential contaminants. Hydrologic sensitivity and system construction scores are heavily weighted in the final scores. Having multiple potential contaminant sources in the 0 to 3-year time of travel zone (Zone 1B) and agricultural land contribute greatly to the overall ranking. The City of Konkolville Hillside Spring Small has low susceptibility to all potential contaminant categories and the larger City of Konkolville Hillside Spring has automatic high susceptibility to all potential contaminant categories.

Table 3. Summary of Birch Creek Culinary Water System Spring Susceptibility Evaluation

Susceptibility Scores[1]									
Well	Potential Contaminant Inventory				System Construction	Final Susceptibility Ranking			
	IOC	VOC	SOC	Microbials		IOC	VOC	SOC	Microbials
Small Hillside Spring	L	L	L	L	H	L	L	L	L
Larger Hillside Spring	L	L	L	L	H	H*	H*	H*	H*

[1]H = High Susceptibility, M = Moderate Susceptibility, L = Low Susceptibility,
IOC = inorganic chemical, VOC = volatile organic chemical, SOC = synthetic organic chemical
*** = Automatic high susceptibility due to a house located within 50 feet of the spring source**

Susceptibility Summary

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In terms of total susceptibility, the Large Hillside Spring of the City of Konkolville rated high for IOCs, VOCs, SOCs, and microbials and the Hillside Spring Small rated low to IOCs, VOCs, SOCs, and microbials. According to the 1997 Ground Water Under Direct Influence (GWUDI) field survey, a house is located within 50 feet of the larger Hillside Spring, resulting in automatic high susceptibility scores for all potential contaminant categories. The system construction for both springs was high due to a lack of information concerning the springs' development. The land use for both springs rated low for IOCs, VOCs, SOCs, and microbials.

Section 4. Options for Drinking Water Protection

The susceptibility assessment should be used as a basis for determining appropriate new protection measures or re-evaluating existing protection efforts. No matter what the susceptibility ranking a source receives, protection is always important. Whether the source is currently located in a "pristine" area or an area with numerous industrial and/or agricultural land uses that require surveillance, the way to ensure good water quality in the future is to act now to protect valuable water supply resources.

For the City of Konkolville, drinking water protection activities should first focus on correcting any deficiencies outlined in the sanitary survey. Actions should be taken to keep a 100-foot radius perimeter clear of all potential contaminants from around the springs as per Idaho Code (IDAPA 58.01.08.04). Any contaminant spills within the delineation should be carefully monitored and dealt with. If possible, the larger spring should be protected so that any chance of contamination from the house that sits within 50 feet of it does not contaminate the water. As much of the designated protection areas are outside the direct jurisdiction of the City of Konkolville drinking water system, collaboration and partnerships with state and local agencies, and industry groups should be established and are critical to the success of drinking water protection.

Due to the time involved with the movement of ground water, drinking water protection activities should be aimed at long-term management strategies even though these strategies may not yield results in the near term. As there are many houses within the delineation, a strong public education program should be a primary focus of any drinking water protection plan. Public education topics could include proper lawn and garden care practices, hazardous waste disposal methods, proper care and maintenance of septic systems, and the importance of water conservation to name but a few. There are multiple resources available to help communities implement protection programs, including the Drinking Water Academy of the EPA.

A system must incorporate a variety of strategies in order to develop a comprehensive drinking water protection plan, be they regulatory in nature (i.e. zoning, permitting) or non-regulatory in nature (i.e. good housekeeping, public education, specific best management practices). For assistance in developing protection strategies please contact the Lewiston Regional Office of the DEQ or the Idaho Rural Water Association.

Assistance

Public water supplies and others may call the following DEQ offices with questions about this assessment and to request assistance with developing and implementing a local protection plan. In addition, draft protection plans may be submitted to the DEQ office for preliminary review and comments.

Lewiston Regional DEQ Office (208) 799-4370

State DEQ Office (208) 373-0502

Website: http://www.deq.state.id.us

Water suppliers serving fewer than 10,000 persons may contact Melinda Harper, mlharper@idahoruralwater.com, Idaho Rural Water Association, at 208-343-7001 for assistance with drinking water protection (formerly springhead protection) strategies.

POTENTIAL CONTAMINANT INVENTORY
LIST OF ACRONYMS AND DEFINITIONS

AST (Aboveground Storage Tanks) – Sites with aboveground storage tanks.

Business Mailing List – This list contains potential contaminant sites identified through a yellow pages database search of standard industry codes (SIC).

CERCLIS – This includes sites considered for listing under the **Comprehensive Environmental Response Compensation and Liability Act (CERCLA)**. CERCLA, more commonly known as Superfund is designed to clean up hazardous waste sites that are on the national priority list (NPL).

Cyanide Site – DEQ permitted and known historical sites/facilities using cyanide.

Dairy – Sites included in the primary contaminant source inventory represent those facilities regulated by Idaho State Department of Agriculture (ISDA) and may range from a few head to several thousand head of milking cows.

Deep Injection Spring – Injection springs regulated under the Idaho Department of Water Resources generally for the disposal of stormwater runoff or agricultural field drainage.

Enhanced Inventory – Enhanced inventory locations are potential contaminant source sites added by the water system. These can include new sites not captured during the primary contaminant inventory, or corrected locations for sites not properly located during the primary contaminant inventory. Enhanced inventory sites can also include miscellaneous sites added by the Idaho Department of Environmental Quality (DEQ) during the primary contaminant inventory.

Floodplain – This is a coverage of the 100year floodplains.

Group 1 Sites – These are sites that show elevated levels of contaminants and are not within the priority one areas.

Inorganic Priority Area – Priority one areas where greater than 25% of the springs/springs show constituents higher than primary standards or other health standards.

Landfill – Areas of open and closed municipal and non-municipal landfills.

LUST (Leaking Underground Storage Tank) – Potential contaminant source sites associated with leaking underground storage tanks as regulated under RCRA.

Mines and Quarries – Mines and quarries permitted through the Idaho Department of Lands.)

Nitrate Priority Area – Area where greater than 25% of springs/springs show nitrate values above 5 mg/L.

NPDES (National Pollutant Discharge Elimination System) – Sites with NPDES permits. The Clean Water Act requires that any discharge of a pollutant to waters of the United States from a point source must be authorized by an NPDES permit.

Organic Priority Areas – These are any areas where greater than 25 % of springs/springs show levels greater than 1% of the primary standard or other health standards.

Recharge Point – This includes active, proposed, and possible recharge sites on the Snake River Plain.

RICRIS – Site regulated under **Resource Conservation Recovery Act (RCRA)**. RCRA is commonly associated with the cradle to grave management approach for generation, storage, and disposal of hazardous wastes.

SARA Tier II (Superfund Amendments and Reauthorization Act Tier II Facilities) – These sites store certain types and amounts of hazardous materials and must be identified under the Community Right to Know Act.

Toxic Release Inventory (TRI) – The toxic release inventory list was developed as part of the Emergency Planning and Community Right to Know (Community Right to Know) Act passed in 1986. The Community Right to Know Act requires the reporting of any release of a chemical found on the TRI list.

UST (Underground Storage Tank) – Potential contaminant source sites associated with underground storage tanks regulated as regulated under RCRA.

Wastewater Land Applications Sites – These are areas where the land application of municipal or industrial wastewater is permitted by DEQ.

Springheads – These are drinking water spring locations regulated under the Safe Drinking Water Act. They are not treated as potential contaminant sources.

NOTE: Many of the potential contaminant sources were located using a geocoding program where mailing addresses are used to locate a facility. Field verification of potential contaminant sources is an important element of an enhanced inventory.

Where possible, a list of potential contaminant sites unable to be located with geocoding will be provided to water systems to determine if the potential contaminant sources are located within the source water assessment area.

References Cited

Great Lakes-Upper Mississippi River Board of State and Provincial Public Health and Environmental Managers, 1997. "Recommended Standards for Water Works."

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Appendix A

City of Konkolville Susceptibility Analysis Worksheets

Susceptibility Analysis Formulas

Formula for Spring Sources

The final spring scores for the susceptibility analysis were determined using the following formulas:

1. VOC/SOC/IOC/ Final Score = (Potential Contaminant/Land Use X 0.818) + System Construction

2. Microbial Final Score = (Potential Contaminant/Land Use X 1.125) + System Construction

Final Susceptibility Scoring:

0 - 7 Low Susceptibility
8 - 15 Moderate Susceptibility
≥ 16 High Susceptibility

Spring Water Susceptibility Report   Public Water System Name : KONKOLVILLE   Spring# : HILLSIDE SPRING
Public Water System Number 2180019   12/17/02 2:48:29 PM

1. System Construction

		SCORE
Intake structure properly constructed	NO	1
Is the water first collected from an underground source Yes = spring developed to collect water from beneath the ground; Lower Score No = water collected after it contacts the atmosphere or unknown; Higher Score	NO	2
Total System Construction Score		3

2. Potential Contaminant / Land Use - ZONE 1A

		IOC Score	VOC Score	SOC Score	Microbial Score
Land Use Zone 1A	RANGELAND, WOODLAND, BASALT	0	0	0	0
Farm chemical use high	NO	0	0	0	
IOC, VOC, SOC, or Microbial sources in Zone 1A	YES	YES	YES	YES	YES
Total Potential Contaminant Source/Land Use Score - Zone 1A		0	0	0	0

Potential Contaminant / Land Use - ZONE 1B

		IOC Score	VOC Score	SOC Score	Microbial Score
Contaminant sources present (Number of Sources)	YES	3	3	3	3
(Score = # Sources X 2) 8 Points Maximum		6	6	6	6
Sources of Class II or III leacheable contaminants or	YES	3	3	3	
4 Points Maximum		3	3	3	
Zone 1B contains or intercepts a Group 1 Area	NO	0	0	0	0
Land use Zone 1B	Less Than 25% Agricultural Land	0	0	0	0
Total Potential Contaminant Source / Land Use Score - Zone 1B		9	9	9	6
Cumulative Potential Contaminant / Land Use Score		9	9	9	6

	IOC	VOC	SOC	Microbial
4. Final Susceptibility Source Score	10	10	10	10
5. Final Well Ranking	High	High	High	High

Spring Water Susceptibility Report   Public Water System Name : KONKOLVILLE   Spring# : HILLSIDE SP-SM

Public Water System Number 2180019   12/17/02 2:51:40 PM

1. System Construction

		SCORE
Intake structure properly constructed	NO	1
Is the water first collected from an underground source	NO	2

Yes = spring developed to collect water from beneath the ground; Lower Score
No = water collected after it contacts the atmosphere or unknown; Higher Score

Total System Construction Score 3

2. Potential Contaminant / Land Use - ZONE 1A

		IOC Score	VOC Score	SOC Score	Microbial Score
Land Use Zone 1A	RANGELAND, WOODLAND, BASALT	0	0	0	0
Farm chemical use high	NO	0	0	0	
IOC, VOC, SOC, or Microbial sources in Zone 1A	NO	NO	NO	NO	NO
Total Potential Contaminant Source/Land Use Score - Zone 1A		0	0	0	0

Potential Contaminant / Land Use - ZONE 1B

		IOC Score	VOC Score	SOC Score	Microbial Score
Contaminant sources present (Number of Sources)	YES	1	1	1	1
(Score = # Sources X 2) 8 Points Maximum		2	2	2	2
Sources of Class II or III leacheable contaminants or	YES	1	1	1	
4 Points Maximum		1	1	1	
Zone 1B contains or intercepts a Group 1 Area	NO	0	0	0	0
Land use Zone 1B	Less Than 25% Agricultural Land	0	0	0	0
Total Potential Contaminant Source / Land Use Score - Zone 1B		3	3	3	2
Cumulative Potential Contaminant / Land Use Score		3	3	3	2
4. Final Susceptibility Source Score		5	5	5	5
5. Final Well Ranking		Low	Low	Low	Low